

#245

MARINER 9

INFRARED RADIOMETER

71-051A-01A

(1 Tape)

MARINER 9

10 & 20 MICRON BRIGHT TEMP-MTAPE

71-051A-01A

This data set has been restored. Originally there was one 9-track, 1600 BPI tape, written in Binary. There is one restored tape. The original tape was created on an IBM 370 computer, and the restored tape was created on an IBM 9021 computer. The DR tape is a 3480 cartridge and the DS tape is 9-track, 6250 BPI. The DR and DS number along with their corresponding D number and time span is as follows:

DR#	DS#	DD#	FILES	ORBITS	TIME SPAN
DR-005474	DS-005474	DD-012610	13	1-270	11/14/71 - 03/27/72

REQ. AGENT
WPP

RAND NO.
RB4685

ACQ. AGENT
CDW

MARINER 9

INFRARED RADIOMETER

71-051A-01A

This data set consists of one 1600 BPI, 9 track, binary, unlabeled tape containing 13 files of data. The 'C' tape has been duped at 800 BPI, 7 track, binary with 13 files. The tape is unformatted fortran binary, created on an IBM 370/155 computer which has single precision words consisting of four 8 - bit bytes.

<u>D#</u>	<u>C#</u>	<u>FILES</u>	<u>ORBITS</u>	<u>TIME SPAN</u>
D-12610	C-09731	13	1-270	11/14/71 - 03/27/72

INFRARED RADIOMETER REDUCED DATA RECORD FOR MARS MARINER '71

General description of tape:

The tape is unformattted fortran binary, created on an IBM 370/155 computer which has single precision words consisting of four 8-bit bytes.

Content:

The tape is divided, as described below, into logical records, each of which contains 14 4-byte integer words:

<u>Word number</u>	<u>Quantity</u>	<u>Unit</u>	<u>Remarks</u>
1	DAS time of measurement	count	1
2	10* brightness temperature at 10 μ	°K	2
3	10* brightness temperature at 20 μ	°K	2
4	10* latitude on Mars	degrees	
5	10* longitude on Mars	degrees	3
6	10* local time on Mars	hours	4
7	Field of view correction for 10 μ	percent	5
8	Field of view correction for 20 μ	percent	5
9	100* limb angle	degrees	6
10	Scale factor indicating average linear dimension at surface	km	
11	Incidence angle	degrees	
12	Emission angle	degrees	
13	Phase angle	degrees	
14	Number of measurements used to get temperature in this record		

All geometrical quantities are as specified in JPL document no. 900-558, dated September 30, 1972.

Remarks:

1. DAS count = 1.2 seconds of time. The DAS count given is that of the first measurement in the set used to arrive at the average

brightness temperature.

2. If the temperature measurement is missing or has been removed because the absolute field of view correction is greater than 10 percent, the temperature is set to zero.
3. Longitude increases westward.
4. Zero hours local time is defined at local midnight.
5. The field of view correction represents the increase/decrease in energy necessary, on the basis of best fit thermal models, to make the field into an infinite homogeneous temperature field. Only measurements with this correction less than or equal to 10 percent are included in the tape. If the absolute field of view correction of one channel only exceeds 10 percent the field of view correction is set to 99 percent.

6. Only measurements with limb angle less than or equal to -5° are included in this tape.

Each record contains the parameters of an averaged number of data points. Six different tests listed below were made for each point to be added to an averaged group. If any one of these tests was true, the current group was terminated and the current point pointed to start a new group.

Tests for start of a new group:

1. Data path crossed the boundary of one of the 1/5M quadrangles.
2. A time gap greater than 4.8 sec without data.
3. The total data number variation in either channel exceeded 3.

(The data numbers DN are proportional to the energy; at 250 K, $DN (10 \mu) \approx 223$ and $DN (20 \mu) \approx 494$.)

4. Distance test: The length of the path for this group would exceed 0.7 times the nominal field of view.

5. The field of view correction for 20μ changed by more than 0.5%.

6. The data path crossed the midnight meridian.

Orbit ordering:

The data are contained in 13 files:

<u>File Number</u>	<u>Orbit Number</u>	
1	1-20, except 4, 17, 19	11/14/71
2	20-40	
3	41-60, except 52	
4	61-80	
5	81-100, except 94, 96	
6	101-120	
7	121-140	
8	141-160	
9	161-180	
10	181-200	
11	201-220, except 218	
12	221-240	
13	241-244	
	258	
	260-262	
	270	

— 3/27/72

The first logical record of each orbit contains the orbit number in the first word followed by 13 words of fill. Next are the logical records of data as described above. The last logical record of each orbit contains the integer -99 in the first word followed by 13 full words of fill.

Physical characteristics of tape:

Density: 1600 b.p.i., 9-track.

Labels: The tape is not labelled.

Files: The tape contains 13 files.

Blocking: The tape has variable length spanned blocked records, with a maximum physical record length of 7204 bytes, including the 4-byte block descriptor word. The last physical record of a file may be shorter than 7204 bytes. A physical record is defined as a record, or group of logical records or segments, separated from another record, or group of logical records or segments, by an inter-record gap and a block descriptor word. Each physical record contains a maximum of 120 logical records of 60 bytes, including the 4-byte segment descriptor word, each. A logical record is a segment defined as a record that is separated from another record by a segment descriptor word only. On this tape, logical records are contained within the physical records. The block descriptor word is the first word of each physical record. The first 2 bytes of the block descriptor word contain the physical record length. The segment descriptor word is the first word of each logical record. The segment (or logical record) length is in the first 2 bytes of the segment descriptor word. The segment code, which indicates the position of each logical record within the physical record, is in bits 6 and 7 (i.e. last two bits) of the third byte of the segment descriptor word.

The code is defined as follows:

<u>Code</u>	<u>Meaning</u>
00	this is the only segment in this physical record.
01	this is the first segment in this physical record.
10	this is the last segment in this physical record.
11	this is neither the last nor the first segment in this physical record.

